CLAIMS

What is claimed is:

1. A method usable with a subterranean well, comprising:

obtaining pressure measurements during flowing of the well without intervening in the well; and

using a model to determine from the pressure measurements a distribution of a characteristic in the vicinity of the well.

2. The method of claim 1, wherein the distribution of the characteristic comprises a permeability profile.

3. The method of claim 1, wherein the using comprises:

providing an estimation of the distribution to the model; and

refining the estimation using the pressure measurements.

4. The method of claim 3, wherein the refining comprises performing an inversion of a connection factor that interrelates the distribution to the pressure measurements.

5. The method of claim 1, further comprising:

deploying a sensor into the well; and

obtaining the pressure measurements from the sensor.

6. The method of claim 5, wherein the deploying comprises deploying an optical fiber into the well.

7. The method of claim 1, further comprising treating the well in response to the determined distribution of the characteristic.

8. The method of claim 1, further comprising placing a subsequent well in response to the determination of the distribution of the characteristic.

9. The method of claim 1, wherein the obtaining comprises using sensors that are permanently mounted in the well.

10. An article comprising a computer readable storage medium storing instructions to cause a processor-based system to use a model to determine a distribution of a characteristic in the vicinity of a well in response to pressure measurements obtained from the well without an intervention in the well.

11. The article of claim 10, wherein the distribution of the characteristic comprises a permeability profile.

12. The article of claim 10, wherein the storage medium stores instructions to cause the processor-based system to:

use an estimation of the distribution in the model to estimate the distribution; and

refine the estimation using the pressure measurements.

13. The article of claim 12, wherein the storage medium stores instructions to cause the processor-based system to perform an inversion of a connection factor that interrelates the distribution to the pressure measurements.

14. The article of claim 10, wherein the pressure measurements are obtained from a sensor.

15. The article of claim 10, wherein the sensor comprises an optical fiber deployed in the wellbore.

16. The article of claim 10, the storage medium storing instructions to cause the processor-based system to determine the distribution in response to pressure measurements obtained from sensors permanently installed in the well.

17. A method for estimating the permeability profile of a well, comprising:

generating a well and formation model;

producing the well so that hydrocarbons flow from the formation and through the well;

measuring pressure at a plurality of points along at least a portion of the well without performing an intervention in the well; and

estimating a permeability profile along the portion of the well by use of the plurality of pressure measurements.

18. The method of claim 17, wherein the generating comprises obtaining information associated with the well and formation.

19. The method of claim 18, wherein the obtaining comprises logging the well.

20. The method of claim 18, wherein the logging comprises logging the well while drilling the well.

21. The method of claim 17, wherein the estimating comprises inputting the plurality of pressure measurements into the model and solving the model for the permeability profile.

22. A system usable with a subterranean well, comprising:

a pressure sensor adapted to obtain pressure measurements along at least a portion of the well while the well is in production without an intervention in the well; and

a unit coupled to the pressure sensor, the unit adapted to:

provide a well and formation model, and

estimate a permeability profile along the portion of the well in response to the pressure measurements.

23. The system of claim 22, wherein the unit is adapted to:

provide an initial estimate of the permeability profile to the model; and

use the model to refine the estimation using the pressure measurements.

24. The system of claim 23, wherein the unit is adapted to perform an inversion of a connection factor that interrelates the permeability profile to the pressure measurements.

25. The system of claim 23, wherein the sensor comprises an optical fiber deployed in the wellbore.